

Amendments to the Claims

Claims 1-12 (Canceled)

Claim 13 (Withdrawn) A method of making an oxidized cellulose ester comprising: oxidized cellulose containing at least 3% by weight carboxylic content to form an oxidized cellulose ester.

Claim 14 (Withdrawn) A method according to claim 13 whereby the acylating step comprises: reacting the oxidized cellulose with an organic acid.

Claim 15 (Withdrawn) A method according to claim 14 whereby the organic acid is a C<sub>1</sub>-C<sub>3</sub> organic acid.

Claim 16 (Withdrawn) A method according to claim 13 whereby the acylating step comprises reacting the cellulose with an organic acid and an acid anhydride.

Claim 17 (Withdrawn) A method according to claim 16 whereby the acid anhydride and the organic acid each have the same number of carbons.

Claim 18 (Withdrawn) A method according to claim 13 further including the step of soaking the oxidized cellulose with a swelling agent prior to the acylating step.

Claim 19 (Withdrawn) A method according to claim 18 whereby the swelling agent is selected from the group consisting of phosphoric acid, isopropyl alcohol, aqueous zinc chloride solution, water, and an amine.

Claim 20 (Withdrawn) A method according to claim 18 whereby the oxidized cellulose is soaked in the swelling agent for a time period of between about 5 to 120 minutes.

Claim 21 (Withdrawn) A method according to claim 20 whereby the oxidized cellulose is soaked in the swelling agent for a time period of between about 30-60 minutes.

Claim 22 (Original) A method according to claim 13 whereby the oxidized cellulose is acylated in the presence of an acid catalyst.

Claim 23 (Withdrawn) A method according to claim 22 whereby the acid catalyst is selected from the group consisting of sulfuric acid, o-phosphoric acid, perchloric acid, and zinc chloride solution.

Claim 24 (Withdrawn) A method according to claim 13 whereby the oxidized cellulose is acylated in the presence of an organic solvent.

Claim 25 (Withdrawn) A method according to claim 24 whereby the organic solvent is selected from the group consisting of DMSO, DMF, DMA, and dioxane.

Claim 26 (Withdrawn) A method according to claim 13 whereby the acylating step comprises:  
reacting the oxidized cellulose with an organic acid chloride, in an organic solvent, and a base catalyst.

Claim 27 (Withdrawn) A method according to claim 26 whereby the organic acid chloride is a C<sub>1</sub>-C<sub>20</sub> organic acid chloride.

Claim 28 (Withdrawn) A method according to claim 26 whereby the organic solvent is selected from the group consisting of DMSO, DMF, DMA, and dioxane.

Claim 29 (Withdrawn) A method according to claim 26 whereby the base catalyst is selected from the group consisting of pyridines, alkylpyridines, trialkylamines and sodium carbonate.

Claim 30 (Withdrawn) A method according to claim 13 whereby the acylating step takes place at a temperature ranging between about 5-125°C.

Claim 31 (Withdrawn) A method according to claim 13 whereby the acylating step takes place for a time period of about 0.5-12 hours.

Claim 32 (Withdrawn) A method according to claim 13 further including the step of filtering the oxidized cellulose ester.

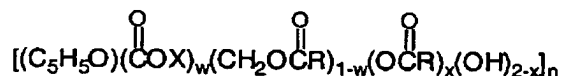
Claim 33 (Withdrawn) A method according to claim 32 further including the step of washing the oxidized cellulose ester to a pH between about 6-8 following the filtering step.

Claim 34 (Withdrawn) A method according to claim 33 further including the step of drying the oxidized cellulose ester following the washing step.

Claim 35 (Canceled)

Claim 36 (Currently Amended) A biodegradable, oxidized cellulose ester having the following general formula I or II:

I.



1

wherein:

X is selected from the group consisting of H, Na, K, Ca, NH<sub>4</sub>, and NEt<sub>3</sub>H;

whereby R is (CH<sub>2</sub>)<sub>n</sub>COOH, where n is 2 to 4;

w is 0.1-1.0;

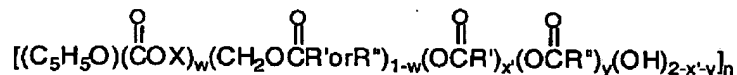
x is 0.1-2.0; and

4

n is 30-1500.

and

## II.



wherein:

X is selected from the group consisting of H, Na, K, Ca, NH<sub>4</sub>, and NEt<sub>3</sub>H;

R' and R'' are each selected from the group consisting of: H; CF<sub>3</sub>; (CH<sub>2</sub>)<sub>n</sub>CH<sub>3</sub>, where n is from 0 to 18; (CH<sub>2</sub>)<sub>n</sub>COOH, where n is from 1 to 8; CY=CZCOOH, where Y and Z are independently selected from the group consisting of hydrogen, methyl, branched alkyl having from 1 to 20 carbon atoms and from one to three *cis* or *trans* double bonds; branched alkenyl having from 1 to 20 carbon atoms and having from one to three *cis* or *trans* double bonds; CY-CH<sub>2</sub>, where Y is H, methyl, or phenyl; CH=CHY, where Y is C<sub>6</sub>H<sub>5</sub>; CH=CYCOOH, where Y is H or CH<sub>3</sub>; (CH<sub>2</sub>)<sub>8</sub>CH=CH(CH<sub>2</sub>)<sub>8</sub>CH<sub>3</sub>; or C<sub>6</sub>H<sub>(2-6)</sub>(COOH)<sub>0-4</sub>, CH<sub>2</sub>CH(COOH)CH<sub>2</sub>-COOH;

w is 0.1-1.0;

x' is 0.1-1.9;

y is 0.1-1.9; and

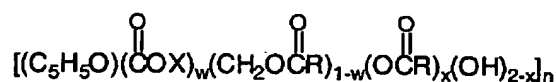
n is 30-850;

said biodegradable oxidized cellulose ester having an acid number of at least 133.

Claim 37 (Canceled)

Claim 38 (New) A monolithic transparent film comprising a biodegradable, oxidized cellulose ester, said oxidized cellulose ester having the following general formula I or II:

I.



wherein:

X is selected from the group consisting of H, Na, K, Ca, NH<sub>4</sub>, and NEt<sub>3</sub>H;

whereby R is (CH<sub>2</sub>)<sub>n</sub>COOH, where n is 2 to 4;

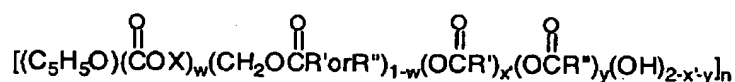
w is 0.1-1.0;

x is 0.1-2.0; and

n is 30-1500.

and

II.



wherein:

X is selected from the group consisting of H, Na, K, Ca, NH<sub>4</sub>, and NEt<sub>3</sub>H;

R' and R'' are each selected from the group consisting of: H; CF<sub>3</sub>; (CH<sub>2</sub>)<sub>n</sub>CH<sub>3</sub>, where n is from 0 to 18; (CH<sub>2</sub>)<sub>n</sub>COOH, where n is from 1 to 8; CY=CZCOOH, where Y and Z are independently selected from the group consisting of hydrogen, methyl, branched alkyl having from 1 to 20 carbon atoms and from one to three *cis* or *trans* double bonds; branched alkenyl having from 1 to 20 carbon atoms and having from one to three *cis* or *trans* double bonds; CY-

$\text{CH}_2$ , where Y is H, methyl, or phenyl;  $\text{CH}=\text{CHY}$ , where Y is  $\text{C}_6\text{H}_5$ ;  $\text{CH}=\text{CYCOOH}$ , where Y is H or  $\text{CH}_3$ ;  $(\text{CH}_2)_8\text{CH}=\text{CH}(\text{CH}_2)_8\text{CH}_3$ ; or  $\text{C}_6\text{H}_{(2-6)}(\text{COOH})_{0-4}$ ,  $\text{CH}_2\text{CH}(\text{COOH})\text{CH}_2\text{-COOH}$ ;

w is 0.1-1.0;

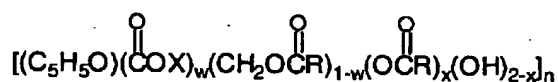
x' is 0.1-1.9;

y is 0.1-1.9; and

n is 30-850.

**Claim 39 (New)** A biodegradable coating comprising a biodegradable, oxidized cellulose ester, said oxidized cellulose ester having the following general formula I or II:

I.



wherein:

X is selected from the group consisting of H, Na, K, Ca,  $\text{NH}_4$ , and  $\text{NEt}_3\text{H}$ ;

whereby R is  $(\text{CH}_2)_n\text{COOH}$ , where n is 2 to 4;

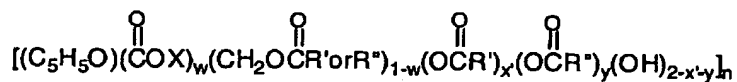
w is 0.1-1.0;

x is 0.1-2.0; and

n is 30-1500.

and

II.



wherein:

X is selected from the group consisting of H, Na, K, Ca, NH<sub>4</sub>, and NEt<sub>3</sub>H;

R' and R'' are each selected from the group consisting of: H; CF<sub>3</sub>; (CH<sub>2</sub>)<sub>n</sub>CH<sub>3</sub>, where n is from 0 to 18; (CH<sub>2</sub>)<sub>n</sub>COOH, where n is from 1 to 8; CY=CZCOOH, where Y and Z are independently selected from the group consisting of hydrogen, methyl, branched alkyl having from 1 to 20 carbon atoms and from one to three *cis* or *trans* double bonds; branched alkenyl having from 1 to 20 carbon atoms and having from one to three *cis* or *trans* double bonds; CY-CH<sub>2</sub>, where Y is H, methyl, or phenyl; CH=CHY, where Y is C<sub>6</sub>H<sub>5</sub>; CH=CYCOOH, where Y is H or CH<sub>3</sub>; (CH<sub>2</sub>)<sub>8</sub>CH=CH(CH<sub>2</sub>)<sub>8</sub>CH<sub>3</sub>; or C<sub>6</sub>H<sub>(2-6)</sub>(COOH)<sub>0-4</sub>, CH<sub>2</sub>CH(COOH)CH<sub>2</sub>-COOH;

w is 0.1-1.0;

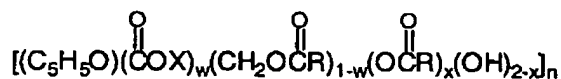
x' is 0.1-1.9;

y is 0.1-1.9; and

n is 30-850.

**Claim 40 (New)** A product selected from the group consisting of a pharmaceutical formulation, an agricultural product, and a veterinary composition, said product comprising at least one active ingredient and a biodegradable, oxidized cellulose ester, said oxidized cellulose ester having the following general formula I or II:

I.



wherein:

X is selected from the group consisting of H, Na, K, Ca, NH<sub>4</sub>, and NEt<sub>3</sub>H;

whereby R is (CH<sub>2</sub>)<sub>n</sub>COOH, where n is 2 to 4;

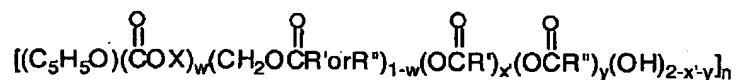
w is 0.1-1.0;

x is 0.1-2.0; and

n is 30-1500.

and

## II.



wherein:

X is selected from the group consisting of H, Na, K, Ca, NH<sub>4</sub>, and NEt<sub>3</sub>H;

R' and R'' are each selected from the group consisting of: H; CF<sub>3</sub>; (CH<sub>2</sub>)<sub>n</sub>CH<sub>3</sub>, where n is from 0 to 18; (CH<sub>2</sub>)<sub>n</sub>COOH, where n is from 1 to 8; CY=CZCOOH, where Y and Z are independently selected from the group consisting of hydrogen, methyl, branched alkyl having from 1 to 20 carbon atoms and from one to three *cis* or *trans* double bonds; branched alkenyl having from 1 to 20 carbon atoms and having from one to three *cis* or *trans* double bonds; CY-CH<sub>2</sub>, where Y is H, methyl, or phenyl; CH=CHY, where Y is C<sub>6</sub>H<sub>5</sub>; CH=CYCOOH, where Y is H or CH<sub>3</sub>; (CH<sub>2</sub>)<sub>8</sub>CH=CH(CH<sub>2</sub>)<sub>8</sub>CH<sub>3</sub>; or C<sub>6</sub>H<sub>(2-6)</sub>(COOH)<sub>0-4</sub>, CH<sub>2</sub>CH(COOH)CH<sub>2</sub>-COOH;

w is 0.1-1.0;

x' is 0.1-1.9;

y is 0.1-1.9; and

n is 30-850.



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